

America's Indispensable ICBM Force

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The National Need

“As long as nuclear weapons exist, I will retain a strong, safe, secure, and reliable nuclear deterrent to protect us and our allies.”

- President-elect Barack Obama, 2008¹

“As stewards of America's nuclear arsenal, your work is vital to the security of our nation.”

- Secretary of Defense Robert M. Gates to bomber/missile forces, 2008²

In the 19 February 2009 installment of the Wright Stuff, Major Mike Faunda's “America's Last ICBM: Why now is the best time to eliminate land-based ICBMs” article generated much needed discussion within the Intercontinental Ballistic Missile (ICBM) community.³ While Major Faunda's work was undoubtedly written to spark debate, this article will provide points for the larger nuclear enterprise and United States (US) policy makers to consider as a counterpoise to Faunda's essay.

The US nuclear deterrent force in general and the ICBM force in particular serve as the nation's ultimate guarantee of survival. While it may be true the force is most appropriate for deterring nation states rather than non-state actors, the same argument could be made for all major weapon systems ever fielded for national defense. In his book *Pure Strategy*, Everett Carl Dolman

asserts that the strategist “seeks instead of culmination a favorable continuation of events.”⁴

Further, he states “it’s not the winner who typically decides when victory in a war has been achieved. It’s the loser.”⁵ With this in mind, we don’t believe the Russians, Chinese, nor a number of other nations have conceded national security in perpetuity to either the US or the remainder of the world. As such, the US must constantly strive to maintain a continuing advantage. Thus far, a large portion of our national security strategy (from a nuclear standoff perspective), has been predicated on a strong, persistent ICBM alert force. It would seem extremely ill-advised to suddenly give up the cornerstone of our continuing advantage, mistakenly believing we have attained permanent advantage. Therefore, the ICBM mission is essential for US freedom of action on the international stage and its nuclear capability helps underwrite other instruments of national power that may indeed contribute to a better deterrent posture against irregular entities in the 21st century security environment. We must not short change a valuable option for the nation simply because it is not the most effective tool to counter all possible challenges.

Indeed, as Faunda asserts, “the ICBM is the perfect weapon. It can strike nearly anywhere on the globe in approximately thirty minutes with enough destructive power to kill hundreds of thousands. Its mere existence in a state’s arsenal places all other states on notice, effectively saying “Don’t Tread on Me” or else.” Moreover, “these powerful weapons were built to contend with the worst of possible situations...convincing others that a nuclear attack against the US was a no-win situation.” That said, the nuclear force has always been a deterrent force. Beginning with Truman’s “Appropriate Response” doctrine in the late 1940s, carrying through today, nuclear deterrence theory has been carefully considered by all presidential administrations. Each administration created specific nuclear weapons policies intended to ensure the survivability of the US and our allies. These policies were all based on deterrence theory--a theory that was certainly focused on

the former Soviet Union for the most part but whose attributes are still relevant to today's security environment. While the policies of each administration have differed slightly, five enduring deterrence themes have remained:

nuclear weapons exist fundamentally to deter nuclear attacks against the US and its allies, the US will never be without nuclear weapons, war plans have provided flexibility and options to National Command Authorities, sufficient nuclear forces (and associated command and control) are maintained to assure their survivability and capability to inflict 'unacceptable damage' to any adversary, even if that nation strikes first, and the targets for nuclear weapons have been enemy's nuclear forces, other military forces, leadership, and war supporting industry.⁶

The reason for the consistency of these policies is that you cannot un-invent nuclear weapons technology. More importantly, you cannot hope that other nations will not use this crippling technology against you to achieve their objectives. As long as any adversary can deliver a strike against the United States in less than minutes, the President of the United States must have the assurance that we will never be caught flat-footed and without viable options to defend the nation.⁷ Of note, the United States remains the world's only nuclear power that is unable to field a new nuclear weapon today and remains dependent on capabilities produced in the 1960's, 1970's and 1980's.

Faunda's assertion that "the missile fields are quiet and missileers are merely caretakers for these relics of past glory" shows a misunderstanding about the nation's ICBM posture today. The ICBM force has the highest operational tempo it has seen in 40 years. This increased ops tempo has generated over 4000 additional maintenance dispatches this past year alone in support of a \$7 Billion sustainment program to increase ICBM reliability and extend the life of the Minuteman III. Further, the coordination between ICBM units and US Strategic Command (USSTRATCOM) has never been so extensive as on-alert forces are in as much demand as ever. Indeed, USSTRATCOM is charged with ensuring that our day-to-day force provides a credible deterrent, the force is safe/secure/reliable, and more importantly ready 24/7/365 to execute options in support of

presidential objectives. In this regard, the ICBM force is a relevant and effective means to thwart aggression against US interests.⁸

The under-pinning of US strategic deterrence is our nuclear deterrence and this nuclear deterrence is designed to safeguard US sovereignty and perhaps more importantly, assure our allies with the guarantee of extended deterrence. In short, the possession of a diverse and robust nuclear capability makes the decision calculus for state-actors unacceptable if they choose aggression. Faunda was somewhat correct to assume that “the current number of ICBMs is still being justified based on a 1960’s bi-polar calculus that assumed Russia had a superior nuclear bomber and missile force.” However, it is more accurate to say that the ICBM force exists as a safeguard against a known and modernizing peer/near-peer capability and as a hedge against a change in their political intent. In a 1998 Defense Science Board study, General (retired) Larry Welch, former Air Force Chief of Staff, made the assertion:

the change in relative value of the ICBM is important and not adequately understood. This is the leg whose value increases the most with declining forces. As the total number on both sides moves the situation from warhead rich to target rich, the single-warhead silo-based ICBM becomes highly stabilizing. It requires more than a 1 to 1 ratio for the attacker to attrit this force...significant numbers of ICBMs denies any adversary the benefit of a limited attack. Without the ICBMs, surprise attacks against a handful of bomber bases and SSBN facilities with plausible deniability could drastically alter the correlation of forces. The Triad remains highly stabilizing and is well worth the cost.⁹

In other words, the goal of deterrence is to present a decision calculus that does not favor the aggressor. As a recent US Department of Defense task force clearly explained,

The heart of a credible and effective deterrent is the regular exercise of procedures demonstrating the capability to execute the mission. It is the convincing and widely recognized *ability to execute*—and thus the *ability to influence the perceptions, plans, and actions of one’s adversaries*—rather than actual execution that constitutes the essence of deterrence.¹⁰

The minute an adversary detects vulnerability, given heightened tensions or a change in political outlook, he is more likely to strike first. Every activity on our three ICBM bases centers on this concept. Twentieth Air Force provides this nation an around-the-clock “ability to execute” options

for the president. Over 10,000 military and civilian personnel work within a 31,000 square-mile complex covering five states to provide a Minuteman III weapon system with a 98% mission capability rate that quietly and safely assures the viability of our way of life.

Faunda's view that US ICBM capabilities failed to deter Al Qaeda oversimplifies the US deterrent posture writ large. However, that same argument could be made for any major weapon system. As previously stated, nuclear weapons are not the right tool to counter all forms of aggression against the US but certainly nuclear capability deters the most egregious threats to national survival. Should we call for cancellation of the F-22 simply because we have not seen an air-to-air threat in over a decade of US military operations? To do so would be extremely negligent and represents a sort of self-deterrence that only benefits an adversary.

We Must Not Self-Deter

“As long as other states have or seek nuclear weapons—and potentially threaten us, our allies, and friends—then we must have a deterrent capacity that makes it clear that challenging the United States in the nuclear arena—or with other weapons of mass destruction—could result in an overwhelming, catastrophic response.”

- Secretary of Defense Robert M. Gates, 2008¹¹

The idea of “self-deterrence” Faunda alludes to is a very real concern for the nation. He acknowledges that “prudence dictates that the US remains a nuclear-capable nation” but that “the deterrence argument has lost its luster due to America's unwillingness to use nuclear weapons against its adversaries.” Again, the F-22 analogy is useful. While there may be no direct air-to-air threat today, the possession of a superior US capability will give other nations pause who wish to challenge US interests or those of our allies. Certainly, the execution of nuclear options will not be the first choice of any US president. However, the lack of a responsive option and the capability to execute it, if required, severely hampers the US ability to influence events related to national survival—a condition that no American president would allow.

The idea that US conventional superiority will have the same deterrent effect as its nuclear arsenal is another Faunda assertion that is flawed. Iraq withstood US air strikes for over a decade and still did not bend to international will. Certainly other small states or non-state actors have and will continue to believe they can successfully ride out conventional operations short of regime change. Faunda's statement that "while a state or non-state actor may use a nuclear (or other Weapon of mass Destruction (WMD)) device against US interests, proportionality dictates a measured response" is certainly accurate, taking an option off the table for the president based on the potential for "vast international and domestic reprisals against the US" is a recipe for preventing the US presidency from accomplishing its #1 priority—the survival of the state.

Major Faunda's paper never addresses the "survival of the state" responsibility our leaders must continually assess. While conventional forces are certainly the primary means to address 21st century security challenges, nuclear forces must also be counted in the deterrence equation at the strategic level of war. Nuclear weapons remain "a keystone of US national power."¹² They "contribute uniquely and fundamentally to deterrence—through their ability to impose costs and deny benefits to an adversary in an exceedingly rapid and devastating manner."¹³ Further, US possession of a credible nuclear weapon capability provides "the President with the ultimate means to terminate conflict promptly on terms favorable to the US"¹⁴ Regardless of one's position on the necessity for total nuclear disarmament, nuclear weapons cannot be un-invented and prudence dictates the US maintain the ability to present viable options to the President of the United States. As a Defense Science board report stated,

So long as there remains, in the hands of other than a completely reliable and trustworthy friend, WMD capable of inflicting intolerable levels of destruction on the United States or its allies, the assured ability to deter such an act remains the first priority in meeting the first responsibility of a democratic government—to keep its people alive and free."¹⁵

To ensure the ability to achieve these policy goals, the US maintains a triad of nuclear strike platforms.

The US nuclear triad consists of intercontinental ballistic missiles (ICBMs), manned bombers, and submarine launched ballistic missiles (SLBMs) with each leg providing attributes that enhance decision-maker flexibility, serve as a measure of protection against a catastrophic weapon system failure (i.e. each leg is a guarantee for the other that we can mitigate single point failures that may arise in each platform), and introduce targeting complications for our adversaries.¹⁶ ICBMs provide the United States with the ability to “strike particular targets promptly and effectively...or to inflict any level of damage deemed appropriate by the President of the United States.”¹⁷ Moreover, short of full-scale attack by Russian ICBMs however, no other nation on the planet has the means to destroy our ICBM forces in the field. They remain impervious to a Pearl Harbor-like sneak attack and therefore are a survivable force for all but the most unthinkable of Cold War scenarios. Although the triad was born of the Cold War, their attributes are still needed in today’s geo-political landscape.¹⁸ In total, these capabilities provide the US with the ability to deter potential aggressors and assure allies and friends of US ability to respond in a crisis.

Counterproliferation

“Among those states or actors who aspire to attain nuclear weapons, which will give that desire up if we do? Answer: zero. What nation, not now seeking nuclear weapons, will do so if we sustain a reliable, safe and secure nuclear deterrent? Answer: zero. And what nation will seek to gain nuclear capabilities if it loses confidence in our nuclear-umbrella deterrent? Answer: many.”

- Former CSAF General (retired) Larry Welch, 2008¹⁹

While war fighting is a vital skillset, deterrence is the primary focus of the US nuclear enterprise with extended deterrence being a vital US counter-proliferation tool. In addition to deterring potential adversaries, extending the protection of the US nuclear deterrent to other nations helps to prevent proliferation of nuclear weapons because nations no longer need to produce weapons for their own defense. “Such security commitments have played a crucial role in

convincing some countries [such as Germany and Japan] to forgo their own nuclear weapons programs, thereby aiding our nonproliferation objectives.”²⁰ This “nuclear umbrella” was used in Europe during the Cold War, is currently in use in Asia as a balance against Chinese nuclear capability, and could very likely be used in other regions of the world. In other words, the umbrella extends US nuclear deterrence capability to friends and allies thus preventing an aggressor’s ability to act without the assurance of an overwhelming US response.

Some believe the discussion of US nuclear capabilities will only strengthen the desire of non-nuclear weapon states to acquire nuclear capabilities.²¹ A 2006 Defense Science Board report stated,

Nations, including rogues, pursue weapons of mass destruction because they have concluded that acquiring WMD is in their national interest—often because they feel threatened by neighbors, want to intimidate their neighbors, or because they want to ensure freedom of action in pursuit of their own regional ambitions.²²

For example, India and Pakistan’s nuclear arsenals are the result of the mutual desire to deter one another rather than as a reaction to US nuclear forces. Further, North Korea and Iran are more likely to have pursued nuclear weapons because of US conventional military superiority rather than its nuclear forces. Understanding the complex decision calculus for state acquisition of nuclear weapons will be necessary to understanding potential adversary intentions. To return to Faunda’s piece, it is important to remember that just because the ICBM is not suited for some missions does not make it inferior. The SSBN and Bomber also have weaknesses that are overcome by the other two legs of the Triad. This is the utility of the current US nuclear posture today.

Another Major Faunda argument makes us believe the US has a credibility issue with regard to the Nuclear Non-Proliferation Treaty (NPT). In essence, Faunda is stating that as long as we have a nuclear arsenal, how can the US with a good moral conscience, insist other countries do not pursue nuclear arms. It is true the NPT’s article VI does set as a goal for Nuclear Weapons States

(NWS) to strive towards nuclear disarmament. However, the treaty (signed by over 190 countries) only legally obligates NWS signatories to not transfer nuclear weapons capability to Non-NWS, as well as obligates non-NWS to not acquire nuclear weapons either organically or from a third-party. Further, the US has made great strides since the end of the Cold War to reduce the size of its nuclear arsenal—nearly 75%—through treaties and other negotiations with the former Soviet Union to reduce the adversarial relationship. These reductions were undertaken in a measured, deliberate fashion and affect a drawdown consistent with foreign capabilities in play internationally. Additionally, these activities were accomplished with very strict verification regimes in place. More importantly, during these verification activities, the viability of the ICBM force has never been in doubt. As long as there are countries that have nuclear assets capable of endangering our national survival we must maintain our nuclear arsenal as a deterrent.

Reinvigorating the Nuclear Enterprise

“The bottom line is that it’s the number one priority of our Air Force.”
- CSAF General Norton A. Schwartz, 2009²³

Another key argument espoused in Faunda’s work relates to the perception of potential adversaries. Faunda wrote that an “important piece of the deterrence equation is the perception adversaries hold of the US capability and will to employ nuclear weapons. While they likely believe the US has the capability, their perception may be changing in light of the recent sub-par performance and track record of America’s ICBM forces.” This is another case where Faunda’s position is flawed. Any force capable of inflicting grave damage to the US has the intelligence apparatus to understand the deficiencies the ICBM wings have recently experienced have little to do with combat capability. They also understand the high standards set for nuclear operations and that “sub-par” issues still give them no incentive for aggression. Therefore, the informed adversary is not currently thinking the ICBM deterrent in particular has weakened. Additionally, the

overwhelming institutional response, both within the Department of Defense (DoD) and the USAF to reinvigorate the entire nuclear enterprise should make it perfectly clear to friends and adversaries alike that the US is serious about preserving its nuclear capability. We similarly do not discount the Russian deterrent when we see or hear about conscript issues or sustainment shortfalls. Our ICBM forces represent an elite set of capabilities and are operated, secured, and maintained using “perfection” as the standard. Most US major weapon systems accept mission capability rates around 70% or higher. The typical standard for ICBMs is 98% or better while the standard for personnel deviations from weapon system standards is always set at zero. No other platform in America’s arsenal operates at such standards of precision, yet this is common practice for a nuclear unit. Imagine telling America’s youth they failed a math test by scoring less than 95%. When America hears of a nuclear unit failing a test or inspection, they can be sure it was because we do not tolerate performance below this extreme standard.

Faunda’s assertion that “it is unlikely that adversaries perceive the US as having the will to employ such a weapon” provides no supporting documentation. The US ICBM force maintains the same level of readiness as it has always had and while some military leaders may believe the ICBM will never be used to “retaliate against non-peer competitors,” this belief is by no means universal as guidance from the highest levels of the US government directs that such a capability exist. The 2008 National Defense Strategy clearly signals our enemies and assures our allies that our “deterrence remain[s] grounded in demonstrated military capabilities that can respond to a broad array of challenges to international security. For example, the United States will maintain its nuclear arsenal as a primary deterrent to nuclear attack, and the New Triad remains a cornerstone of strategic deterrence.”²⁴ Unless one can predict the future, taking options out of the hands of the US president is foolhardy. Further, this capability stands ready to deter and hold at risk potential threats

to US security regardless of what current intent may be prevalent in potential adversary governments.

The Economical Advantage

“By providing a reliable and capable nuclear deterrence, the ICBM force serves as a key piece in the national policy of the US. Through enhancement of current systems and procurement of new weapon platforms to our arsenal, we ensure the continuing viability of the nation’s nuclear deterrence.”

- Major General Roger W. Burg, 20 AF/CC, 2009²⁵

The ICBM force provides the best insurance policy the United States has to secure the survival of the nation. However, Faunda asserts “the US is maintaining a fairly robust and costly ICBM force, from acquisition to maintenance, training, and infrastructure, for a very limited purpose – to deter and, if necessary, retaliate for a nuclear strike conducted by a state actor.” Maintaining US sovereignty and freedom of action in the international arena is not a “limited purpose” rather it is a safeguard of the strategic national interest. The cost to operate the ICBM mission is less than \$1 Billion for Operations & Maintenance, Base and Infrastructure, and ICBM Prime Integration Contract/System Program Office support for all three ICBM wings combined per year. Considering the defense budget this year is projected to exceed \$530 Billion,²⁶ the ICBM force costs less than 1/5 of 1 percent annually. Additionally, the nation spends approximately \$54 Billion²⁷ annually on the nuclear enterprise across all government agencies; this from a budget that will exceed \$3 Trillion,²⁸ again slightly over 1.8%. Given the costs of a single B-2 or Ohio Class ballistic submarine (B-2 costs ~\$2B/ea;²⁹ \$2B in 1996 dollars for an Ohio Class SSBN³⁰), the nation must understand the monetary bargain the ICBM force represents to secure the American way of life and assure our allies. Finally, we would ask Major Faunda what the cheaper alternative is, in terms of people and weapons, capable of providing the same level of deterrent value.

Major Faunda’s view that the ICBM force is outdated also does not accurately reflect the current state of the ICBM fleet. In actuality the Minuteman III is within two years of completing a

ten year, \$7 Billion modernization effort. Upon completion, the Minuteman III will be of the Cold War in name only. All three solid propellant motor stages have been pulled and re-poured. The guidance system as well as the post-boost vehicle has been replaced with current technologies. Infrastructure and security concerns are being addressed and implemented to meet the modern threat. All told, these efforts have ensured the Minuteman III fleet will be fully operational to the year 2020--hardly a relic of a by-gone era.³¹

The budgetary argument that “the cost-savings from eliminating the remaining ICBMs and closing the two missile-only bases, hundreds of millions of dollars per year, can be re-directed to more critical mission areas” simply does not take into account the increase to our vulnerabilities. The idea, we gather, is to shift approximately 1/5 of 1 percent of the DoD budget so we can buy maybe five more aircraft, 1/3 of a ship, and maybe a dozen tanks per year. Compare these meager gains with the fact the ICBM provides our adversary with a critical targeting dilemma that no other weapon system can provide. With over 500 additional hardened targets to contend with, the ICBM introduces a decision calculus that invariably leans toward stability. In other words, a relatively small investment ensures extended capability for the current President and the next five presidential terms that follow.

Conclusion

“So long as other countries build and improve their nuclear arsenals, deterrence of their use needs to be a part of Western strategy. The efficiency of our weapons arsenals must be preserved.”

- Former Secretary of State Henry Kissinger, 2009³²

“Nuclear forces underwrite our Nation’s security. Since the Cuban Missile Crisis in 1962, America has relied on the strategic deterrent capability and credibility of the Minuteman Intercontinental Ballistic Missile (ICBM) force and the professionalism and dedication of the Airmen who operate, maintain, secure, and sustain it. Air Force ICBM professionals have earned a well-deserved reputation for dedication, proficiency, excellence, and focused stewardship of the land-based component of our country’s nuclear triad”

- General C. Robert Kehler, AFPSC/CC, 2008³³

Major Faunda's article is timely in that it has energized ICBM experts who have remained quiet about the day-to-day defense they provide for the nation. However, for an air force officer with Major Faunda's academic credentials to produce an article for the masses that does not present all sides of the argument is intellectually incomplete. Surely, Major Faunda excluded these relevant factors to simply generate discussion on important ICBM issues. Indeed, we in the ICBM community have sat silent for far too long.

The bedrock of our strategic deterrence efforts is the nuclear arsenal. In particular, the ICBM provides specific attributes our national leadership values through stabilizing targeting dilemmas for our enemy, and if needed a devastating rapid response to crisis. The ICBM provides the nation with a credible, modern, robust, and cost-effective deterrent that provides assurances to our allies, dissuades potential competitors, deters known state adversaries, and thereby ensures our national survival for years to come. "No other weapon system or combat force provides the nation with the political and military power that resides on alert."³⁴ Indeed, America's ICBM force provides effects on a day-to-day basis and represents unique political and military significance. The indispensable ICBM force is precisely the capability President Teddy Roosevelt was referring to when he, as the Commander in Chief, said he preferred to "speak softly and carry a big stick."

NOTES

¹ Arms Control Today. "Arms Control Today 2008 Presidential Q&A: President-elect Barack Obama," Available on-line at: <http://www.armscontrol.org/print/3360>

² C. Donald Alston. "Views on Air Force Strategic Deterrence," *High Frontier*, February 2009, 11

³ Mike Faunda. "America's Last ICBM: Why now is the best time to eliminate land-based ICBMs," *The Wright Stuff*, available on-line at: <http://www.au.af.mil/au/aunews/>

⁴ Everett Carl Dolman, *Pure Strategy*, New York: Frank Cass, 2005), 5

⁵ Ibid, 7

⁶ David M. Kunsman and Douglas B. Lawson. "A Primer on US Strategic Nuclear Policy," SAND REPORT, SAND2001-0053, Prepared by Sandia National Laboratories, Albuquerque, New Mexico 87185 and Livermore, California 94550

⁷ Understanding potential adversary capabilities and intent is still vital to the survival of the United States. Proliferation of missile technology and nuclear weapon design knowledge creates a threat that must be addressed by defense policy makers. Further, nuclear weapon states such as Russia and China are modernizing their strategic forces while other states, like Iran are seeking nuclear technology and already possess the means to deliver WMD via ballistic missiles. Additionally, many states are willing to provide the technology or design information for WMD and delivery systems to the highest bidder. In response to these threats, the United States and its allies must take steps diplomatically and militarily to address these challenges.

⁸ While it may be true the ICBM force in particular is not the best tool to counter non-state threats, neither are many other capabilities in the US military arsenal today. The US Navy recently put to sea the USS George H.W. Bush aircraft carrier at a price tag of over \$6 billion dollars, and while it is an extremely capable weapon system built to project US military and diplomatic power, its design and purpose is clearly no better at deterring non-state entities than the ICBM. However, we continue to build aircraft carriers because they provide numerous options to presidential decision makers--options that cannot be created in times of crisis. In this regard, all US military capabilities are a visible reminder to potential adversaries of our status as a superpower and our resolve to place US forces into conflict as needed. The nation's ICBM force is but one means alongside other instruments of national power needed to protect the American public.

⁹ Defense Science Board. "Report of the DSB Task Force on Nuclear Deterrence," October 1998, 14

¹⁰ Secretary of Defense Task Force on DoD Nuclear Weapons Management. "Report of the Secretary of Defense Task Force on DoD Nuclear Weapons Management: Phase I: The Air Force's Nuclear Mission," *Department of Defense*, Sep 2008, 17

¹¹ Robert M. Gates. "Speech by Defense Secretary Gates on Nuclear Deterrence," *Carnegie Endowment for International Peace*, Washington DC, 28 Oct 08. Available on-line at: <http://www.america.gov/st/texttrans-english/2008/October/20081030151217eafas0.2037317.html>

¹² Department of Defense. "Quadrennial Defense Review," Washington DC: *Department of Defense*, Feb 2006, 49

¹³ Department of Defense. "Deterrence Operations Joint Operating concept," *Department of Defense*, Dec 2006, 39

¹⁴ Ibid, 39

¹⁵ Defense Science Board. "Report of the DSB Task Force on Nuclear Capabilities," December 2006, 4

¹⁶ The traditional nuclear triad is currently a part of the New Triad as described in the 2001 Nuclear Posture Review. "The New Triad consists of Offensive strike systems (both nuclear and non-nuclear), Defenses (active and passive), a revitalized defense infrastructure that will provide new capabilities in a timely fashion to meet emerging threats. This new triad is bound together by enhanced command and control and intelligence systems." Available on-line at <http://www.defenselink.mil/news/Jan2002/d20020109npr.pdf>

¹⁷ National Institute for Public Policy. "Strategic Offensive Forces and the Nuclear Posture Review's "New Triad," *National Institute for Public Policy*, 2003, 20

¹⁸ SLBMs represent the most survivable leg of the triad and therefore provide value in assuring the United States has a second-strike capability thus preventing post-attack coercion. A difference between SLBM and ICBM capability is that overflight concerns can be mitigated by adjusting launch patrol areas. The third leg of the US triad is manned bombers. Bombers provide attack flexibility and either penetrate enemy air space to deliver gravity weapons or stand-off for cruise missile strikes. A key limitation to the bomber option is response time. However, the ability to use lower yields and the ability to be recalled are important planning factors in addition to the flexible deterrent options available (i.e. signal resolve through aircraft deployment of generation to nuclear alert). Other options available to the President include fighter aircraft capable of delivering gravity weapons and nuclear armed cruise missiles launched from sea. Neither of these capabilities are prompt options available day-to-day and their use would require planning to generate these weapon systems for use as well as to ensure aircraft/missile penetration of enemy airspace and survivability.

¹⁹ Peter Huessy. "Keep US Nukes: Deterrence is job number one," *Washington Times*, July 21 2008, 27

²⁰ George W. Bush. "National Security Strategy of the United States," *White House*, Washington DC, 2006, 22

²¹ See Bruce Sugden. "Assessing the Strategic Horizon," *The Nonproliferation Review*, 1 November 2008

²² DSB "Nuclear Capabilities, 5

²³ Military Times. "Schwartz' Top Priorities," Interview, Available on-line at: <http://www.militarytimes.com/forums/showthread.php?p=191532>

²⁴ Department of Defense. "National Defense Strategy," June 2008, 12.

²⁵ Roger W. Burg. "The Future of the Land-Based Deterrent Under Air Force Global Strike Command," *High Frontier*, February 2009, 8

²⁶ Office of Management and Budget. "A New Era of Responsibility. Renewing America's Promise" President Obama's Budget Proposal for FY2010. www.budget.gov. 30.

²⁷ Steven Kosiak. "Spending on US Strategic Nuclear Forces" Sep 2006, i.

²⁸ Office of Management and Budget. "A New Era of Responsibility. Renewing America's Promise," President Obama's Budget Proposal for FY2010, Available on-line at: www.budget.gov. 114.

²⁹ General Accounting Office. "B-2 Bomber, Cost and Operational Issues," August 1997, 2

³⁰ Robert O. Work. "The US Navy, Charting a Course for Tomorrow's Fleet," Center for Strategic and Budgetary Assessment. 2008, 84

³¹ Additionally, recent National Defense Authorization guidance directs the Air Force to "modernize Minuteman III intercontinental ballistic missiles in the United States inventory...to sustain the deployed force of such missiles through 2030."—See 190th Congress of the United States (Second Session), "John Warner National Defense Authorization Act for Fiscal Year 2007". HR 5122, Section 139, p32.

³² Henry Kissinger, *Newsweek*, Feb 16, 2009. Available on-line at: <http://www.newsweek.com/id/183673>

³³ General C. Robert Kehler, AFSPC/CC. Memorandum to AFSPC Directors and Commanders, June 9, 2008 "Nuclear Operations", Available on -line: <https://www.my.af.mil/gcss-af/USAF/ep/globalTab.do?channelPageId=-1073755425>

³⁴ Tim McMahon. "Vital Mission – Elite Team. A Reflection on the ICBM Force," *High Frontier*, February 2009, 15